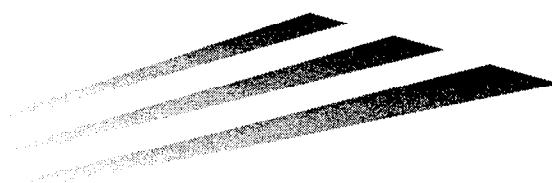




KENTUCKY TRANSPORTATION CENTER

College of Engineering

EVALUATION OF ARTIMIS TELEPHONE INFORMATION SYSTEM



UNIVERSITY OF KENTUCKY

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NTIS

**ARTIMIS TELEPHONE TRAVEL INFORMATION SERVICE:
Overall Public Awareness**

Report No. KTC-99-66

“Evaluation of ARTIMIS Telephone Information System”



**Lisa Aultman-Hall
Department of Civil Engineering and Kentucky Transportation Center
University of Kentucky**

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This report does not constitute a standard, specification, or regulation.

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16. Abstract This report summarizes the results of a random telephone survey of households in the Greater Cincinnati and Northern Kentucky Area. The objective was to determine awareness of the traffic management center and its telephone travel information service. A secondary objective was to determine the public's preference for dialing and recalling phone numbers for travel information. The survey found that 39% were aware of a traffic management center while 55% were aware of a telephone traffic information service. Awareness varied by work location, household characteristics and personal attributes. Some households that could potentially benefit from the service were unaware of its existence. Some minor confusion over traffic management services was found. The majority of both those aware and unaware of the service indicated a preference for 211 over 333-3333 as a dialing code for traffic information (both for recall and ease of dialing).					
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1.0 INTRODUCTION

The Advanced Regional Traffic Interactive Management and Information System (ARTIMIS) is a regional traffic management system provided by the Kentucky Transportation Cabinet (KYTC), Ohio Department of Transportation (ODOT), Federal Highway Administration (FHWA), Ohio-Kentucky-Indiana (OKI) Regional Council of Governments, and the City of Cincinnati. ARTIMIS has two major functions, specifically, Advanced Traffic Management Systems (ATMS) and Advanced Traveler Information Systems (ATIS). The ATIS service, known as SmarTraveler, is but one component of the ATIS function and is hereinafter referred to as the ARTIMIS Traveler Advisory Telephone Service or ARTIMIS TATS. Originally, all landline callers to ARTIMIS TATS dialed 333-3333. In November of 1995, 311 was introduced in the Kentucky ARTIMIS area. In March of 1998 the three-digit number 211 was introduced in most of the ARTIMIS area in Kentucky and Ohio. The 211 and 311 numbers are not a part of the SmarTraveler component but an enhancement provided by the KYTC and ODOT, and 333-3333 remains available and long distance callers can dial 513-333-3333.

On March 8, 1999, after the Federal Highway Administration (FHWA) had prepared a petition for a nationwide N11 dialing code, the United States Department of Transportation (USDOT) formally petitioned the FCC for the N11 dialing code¹ that could be used to obtain traveler information across the United States. In 1998, in response to the federal interest in establishing N11 as a national traveler information number and a desire to evaluate the success and awareness of ARTIMIS TATS, the KYTC initiated a research project jointly funded by FHWA, KYTC, and ODOT. The benefits of a national N11 dialing code and the satisfaction and awareness of the traveler information number in Cincinnati / Northern Kentucky were to be assessed through surveying users of the system as well as a random sample of individuals in the area. This is the second and final report in this research project related to the overall public awareness of the ARTIMIS TATS.

The following are the overall objectives that this research project was created to meet:

- to assess the overall satisfaction and effectiveness of ARTIMIS TATS;
- to determine the general awareness of ARTIMIS TATS in the regional coverage area;
- to determine the prevalence and preference of accessing the service through the use of a N11 dialing code, such as 211, versus a seven-digit number; and
- to determine the influence of traveler information on travel behavior.

In order to accomplish these objectives, two surveys were designed and undertaken. ARTIMIS TATS users were invited to participate in the first survey, by intercepting their calls into the system. At that time only two brief questions were asked, however, the follow-up telephone satisfaction survey was completed within the next two weeks. The second survey, an awareness survey, was designed as a random-digit dial survey for

¹ N11 dialing codes are those 10 numbers where the first digit varies from 0 to 9 but the last two digits are "11". There are held in reserve for special purposes such as the 011 number for overseas long distance, 411 for directory assistance or 911 for emergencies.

people in the ARTIMIS coverage area. This report describes the results of the random awareness survey and answers the second and third of the objectives in the bulleted list above. The results relating to user satisfaction and the effect the system has on travel behavior can be found in the phase 1 report entitled "ARTIMIS Telephone Travel Information Service: Current Use Patterns and User Satisfaction" (July 1999).

The next section of this report describes the survey procedure. It is followed by two result sections: patterns of system awareness and the potential for additional users; and finally the preference for dialing and recalling phone numbers for travel information.

2.0 SURVEY METHODOLOGY

2.1 Survey Design

A copy of the awareness survey questionnaire designed by the Kentucky Transportation Center for this evaluation can be found in Appendix A. Not all questions were asked of all individuals. The survey was designed such that individuals who were aware and unaware of either a traffic management system or a telephone travel information system in Greater Cincinnati would be asked different questions. In addition to the awareness questions, individuals were questioned regarding their personal and household characteristics, their work travel behavior and their preference for dialing/recalling different telephone numbers. The survey was tailored to the number of individuals in the household of the respondent and whether they worked outside the home. The questions regarding telephone numbers were randomized so that the numbers were presented in random order and that the number 333-3333 was described as "seven threes" half the time and "three three three three three three three" the other half.

2.2 Survey Execution

The survey was conducted by the University of Kentucky Survey Research Center² (UK-SRC) from the Lexington campus where those performing the survey were aided by the use of computers that prompted them with the survey questions on the screen and allowed them to enter the response. Earlier responses automatically affected which subsequent questions were presented to the respondent. This computerized process eliminated the need to later enter the data into a database. The SRC uses a random digit dialing procedure that gave every household with a telephone in the eight counties of Ohio-Kentucky-Indiana (OKI) metropolitan area an equal chance of being selected. Calls were made between August 11 and September 14, 1999. The SRC contacted 2,582 households. Of these 195 were deemed ineligible due to deafness, illness or unavailability. Of the remaining households 1052 or 44.1% agreed to participate. Dr. Langley of the SRC reported this response rate to be typical given the subject matter of the survey.

² The UK Survey Research Center conducts socially significant research with public policy implications as well as research of theoretical or academic interest. UK-SRC has conducted more than 340 studies since it was established in 1979. It uses the ACS-Query Computer-Assisted Telephone Interviewing (CATI) system, a 16-line telephone bank, and 20 computers.

3.0 AWARENESS RESULTS

Participants were asked if they were aware of ARTIMIS and SmarTraveler specifically but were also asked if they were aware of the metropolitan area having a traffic management center and a telephone traffic information system. A total of 32% of the respondents indicated they had heard of ARTIMIS (it was spelled by the surveyor). These individuals were asked to describe in their own words what ARTIMIS was. Only 54% of these individuals correctly described something related to traffic management, while 28% indicated they did not know. A small portion, 9% indicated something related to buses while another 3% indicated another traffic related function. If respondents had not heard of ARTIMIS or did not reasonably describe what ARTIMIS was, a definition of a traffic management center was provided and respondents were asked whether they were previously aware that Cincinnati/Northern Kentucky had such a system. Of the 89% of the sample asked, 28% answered yes. Therefore, based on the combined answers to the series of questions, overall 39.3% of the random sample was aware of a traffic management center in the area. For this point forward as patterns of awareness are described in this report, these people will be referred to as those who were aware of a traffic management center or TMC aware.

In a similar fashion respondents were asked if they had heard of SmarTraveler (the company that currently provides the telephone travel information for ARTIMIS). A total of 39% of the respondents indicated they had heard of SmarTraveler but only 39.5% of these could describe it as a telephone travel information service. Over a third (34.8%) of these people who had heard of SmarTraveler defined it incorrectly while 25.7% did not know what it was. Of the 178 people who recognize SmarTraveler and ARTIMIS and correctly identified their functions only 28% knew that Smartraveler was part of ARTIMIS. For the individuals who did not recognize the name SmarTraveler as well as those who incorrectly defined its function an additional question was asked to determine if they were aware that Cincinnati / Northern Kentucky had a telephone number for current travel information. A total of 47% of these individuals were aware of the system. Therefore, based on the series of questions, overall 55% of the respondents were aware that the area had a telephone travel information service. From this point forward as patterns of awareness are described, these people will be referred to as those who were aware of the telephone travel information or telephone travel info aware.

Those who were aware of a telephone travel information service were asked how they became aware. Of the 581 people asked 47% indicated television while 37% indicated radio. Smaller percentages indicated word of mouth (8%), road signs (8%) and the newspaper (7%). Very few individuals (1%) became aware of the system through the internet.

3.1 Usage Patterns of the Aware

Table 1 indicates the frequency with which the individuals aware of the telephone travel information service make use of it. While the vast majority of individuals do not use the travel information service, a relatively large number do. If one factors in the unaware individuals, then overall 11% of the 1052 random people surveyed were users of the

ARTIMIS TATS. In addition, the respondents indicated that other people in their household used the service. Table 2 indicates that almost 12% of the aware respondents indicated that someone else in the household had used the service. A small number (47) of the 579 aware respondents had more than one user in the household. This 8% of the aware respondents corresponds to 4.5% of the households contacted having more than one ARTIMIS TATS user.

Those who were not aware of the telephone travel information service were asked to predict how often they (or someone in their household) would use the service now that they were aware. These results are shown in Table 3. Nearly half of the households indicated they would never make use of the service. However, significant portions of the unaware households did indicate they might use the service, some frequently. This indicates an opportunity to expand the users of the service.

A small portion (8.4%) of the respondents indicated they had used a telephone travel information service in another city. Thirty-five of these people were not aware that Cincinnati had such a system. This further indicates some people still need to be reached with the information regarding the service.

3.2 Geographic Distribution and Awareness

Figure 1 illustrates that respondents were spread throughout the OKI region. This map was produced based on the home zip code provided by the respondent and the marker denotes the center of the zip code region. The respondents are spread throughout the region with more in Hamilton county where the City of Cincinnati and a larger relative population are found. There was no statistically significant difference in the percentage of people in each of the three states who were aware of either a TMC or the telephone travel info. As illustrated in Figures 2 and 3 slight patterns of awareness by home zip code are noticeable. The respondents in Hamilton and Claremont counties as well as Northern Kentucky are more aware than other zip codes. The results suggest that the more outlying counties of Butler, Warren and Dearborn may be slightly less aware. However, these people may have less need or use for the services of ARTIMIS.

Figure 4 illustrates the zip code centroids for the work locations of the respondents and others in their household when a work zip code was provided (note that only 70% of respondents worked outside of the home). Figure 5 illustrates the percent of respondents (not households) by work zip code who were TMC aware, while Figure 6 illustrates telephone travel info awareness. Those working inside of the I-275 belt freeway are more aware of the services as would be expected. Those who did not know their work zip code were asked what city or town they worked in. If that city was Cincinnati (168 of respondents) they were further asked if that was downtown Cincinnati. A total of 23.8% said they worked in downtown. There was no TMC awareness difference for downtown versus non downtown Cincinnati workers but only 35% were aware of the telephone travel info (less than the overall number).

3.3 Travel Characteristics and Awareness

Only 91% of the survey respondents held valid driver's licenses. While 56% of those with licenses were aware of the telephone travel info only 44% of those unlicensed were. Similarly, 41% of licensed drivers were TMC aware while only 20% of those without licenses were. People with driver's licenses would be expected to have a higher level of awareness.

Respondents were asked if anyone in their household had traveled on any freeway or Interstate in the area during the last seven days. They were also asked if anyone in their household had traveled on the streets of downtown Cincinnati, Covington or Newport. While 55% had traveled on both, 11% had traveled on neither. Those who had traveled on one of these systems which is covered by ARTIMIS were much more likely to be TMC aware (41% versus 22%). Similarly, 57% (versus 44%) of those who had traveled the system were aware of the telephone travel info. This pattern also agrees with expectation in that those with a use for the services are more likely to be aware of them. However, there are still those that may have a use that were unaware.

Respondents were asked how they traveled to work and 85% indicated they drive alone. While 6% do not drive, 9% drive with someone else. The mode used to travel to work did not impact the level of either awareness variables (using Chi-Square tests at the 0.05 significance level).

Respondents were also asked if they traveled to work in the morning and or evening peak rush hours. Surprisingly, this variable did not impact awareness. If the respondent traveled to work in one or both peak periods (77%) they were not more likely to be aware of the existence of a TMC or the telephone travel info system. The distance the respondent traveled to work also did not affect their awareness of either system.

Two new variables were created to represent the potential that an individual respondent or the household would have a use for the services of the ARTIMIS TATS. The individual respondent potential was set to 1 or "yes" if the following conditions were all true: valid drivers' license, household owned one or more vehicles, the individual traveled in peak period, the individual drives to work (alone or with someone), and the household had traveled on the system in the last 7 days. Nearly half the sample or 515 respondents could be considered potential ARTIMIS TATS consumers. Of these individual 45.6% were aware of the TMC and 60.6% were aware of the telephone travel info. These numbers are significantly higher than the general response but still indicate potential users who are unaware of the services.

Alternatively, on the household level, a household was to be deemed to have the potential to be ARTIMIS TATS user the following conditions were all true: one or more vehicles owned by the household, any one member of the household drives to work, and any one member of the household drives in the peak times. Two thirds or 67% of the households were deemed potential ARTIMIS TATS users. The respondents from these households were also more likely than average to be aware of the TMC and the telephone travel info

service (44% and 58% respectively). But again, some households who have the potential to make use of the services are not aware of them.

3.4 Personal / Household Characteristics and Awareness

The age distribution for men and women in the overall sample is shown in Table 4. There was no statistically significant difference between the telephone travel info awareness level of men and women. There was also no difference by age. However, there were differences in the awareness of a TMC. While 44% of men were TMC aware only 36% of women were. Table 5 listed the awareness by age group. It indicates that both the old and young are less aware of the existence of the traffic management center. This lack of awareness for certain groups may relate to the overall lower awareness of the TMC versus the telephone travel information service. The concept of a TMC is much more complex or abstract and may be difficult for many people to image.

The respondents were asked about the composition of their households. None of the following variables had a statistically significant impact on whether people were aware of either the TMC or the telephone travel service: household size, the number of teenagers, the number of adults or the number of children under 12. However, the number of workers in the household did. These results are shown in Table 6. The more workers per household the more likely the household is to be aware of the ARTIMIS services. This suggests that to some degree people seek out these services based on their need for it. The results related to number of vehicles per household also suggest that awareness is related to travel needs. Table 7 demonstrates that the awareness of both the TMC and the telephone travel info increases with the number of vehicles per household.

Over half of the households surveyed owned at least one cellular phone, while 23.7% owned more than one. Households owning a cellular phone were more aware of both the TMC and the telephone travel information (61% and 60% respectively). The 61% of TMC aware people is the highest TMC awareness of any subgroup in the analysis. Considering the cellular phone ownership together with the respondent and household potential user variable described above indicates that 40% of the non cellular respondents are considered to have the potential for using ARTIMIS services while 55% of the non-cellular households are considered household potential users. Of the 581 people who were aware of the telephone travel information, 40% were aware you could make a free call to 211 from anywhere in the area. However, only 30% were aware you could call 211 from both cellular and non-cellular phones. This information indicates a need to further promote 211's features.

In order to consider education the responses were code into two categories: those with at least some college and those without. Education level affected both awareness variables as has been found in other studies. Users of TATS have higher education levels than the general public. A total of 58.4% of those with some college were aware of the telephone travel information while only 50% of the others were. A high percent (72%) of those households with some college education were deemed to be potential TATS users. Similarly, higher income levels were associated with both higher levels of both categories of awareness as well as higher potential as a TATS user.

4.0 PHONE NUMBERS FOR TRAVEL INFORMATION

The 118 people who used the ARTIMIS TATS were asked which phone number they used to contact the service. While 23% indicated 211 and 5% indicated 311, only 1 person indicated 333-3333. The vast majority of people, 62%, simply did not know what number they used. A few others gave random wrong numbers. These results indicate the importance of having an easy number for travel information so that users can easily recall it when needed.

The survey respondents were asked which of the numbers 211 or 333-3333 they would prefer to dial and which they would find easier to remember. The interviewers read 211 first half of the time and 333-3333 first half of the time. Half of the time 333-3333 was shortened to "seven threes". A large majority, 81.8% preferred 211 for dialing and recall. A much smaller proportion 12.8% preferred 333-3333 for dialing and recall. An even smaller portion of the sample preferred one number for dialing but another for recall. A total of 4.0% preferred to dial 211 but thought 333-3333 was easier to recall. The opposite was indicated by 1.4% (211 easier to recall but 333-3333 easier to dial).

The people who were aware of the TMC or the telephone travel information service had a tendency to indicate a higher preference for 211. For example, 86% of those aware of one or the other system indicated 211 was easier to recall. While 90% of those aware of the telephone travel information service indicated a preference for recalling 211. Only 73% of those who were unaware indicated 211 would be easier to recall. There was no difference between those aware and unaware of the TMC for dialing code. However, 94% of those aware of the telephone travel information service indicated a preference to dial 211 (versus 76%). Even though awareness of the existing 211 service in Cincinnati influenced people's choice of 211 as a dialing and recall, the percentage of unaware people who preferred to the three digit dialing code is still very high.

There was no difference between men and women for either dialing or recall of the phone number. However, as people age they have a very slight preference for 333-3333 for dialing. However, the older respondents also had a slightly higher preference for being able to recall 211.

5.0 CONCLUSIONS

This survey has demonstrated that a relatively large portion of the public in Greater Cincinnati and Northern Kentucky (55%) is aware of the ARTIMIS TATS. Furthermore, a relatively large portion of the public (12%) makes use of the service. The results of the random survey in the Boston metropolitan area in 1994 concluded that 47% of the respondents were aware of SmarTraveler, 16% had heard of SmarTraveler, but did not know what it was, and 22% were aware of SmarTraveler, but did not use it. Only 9% of the Boston respondents used the SmarTraveler services. In Washington, D.C., approximately 11% of the respondents were aware of SmarTraveler in the Partners in Motion program. Of these, only 10% said they used the telephone information system (Schintler, 1998). The finding of slightly higher awareness in Cincinnati Northern Kentucky could be due both to ongoing successful advertising campaigns in OKI as well

as the increase in public awareness nation-wide for traffic issues and services between the previous studies and this one.

This study found fewer people (39%) were aware of a traffic management center (generically) or ARTIMIS (specifically) compared to the telephone travel information service. There is also some confusion regarding ARTIMIS and its services. The relationship between ARTIMIS and its TATS is not generally known. Better education and public campaigns to explain the purpose and components of traffic management may be needed to ensure the public has the understanding necessary to determine whether they support its continued existence or expansion.

A relatively large percentage of the random sample was using of ARTIMIS TATS (12%). However, a large portion of the users did not know the number they called for the ARTIMIS TATS. Overall people were unaware 211 could be dialed from a non-cellular phone.

The survey did find that there are potential users of the system who are still unaware of it. Awareness was found to vary with work location, age, workers per household, income, education and travel patterns. However, no definable target group of unaware people could be described.

Finally, TATS users as well as those who were aware or unaware of telephone travel information indicated a strong preference for 211 over 333-3333 for dialing and recall. Given the limited number of dedicated 3-digit numbers available to the public there will be a need to evaluate the relative importance of traffic management and travel information nation-wide to determine if a 3-digit number should be allocated. Factors in this debate may include the ability to use services in multiple cities, the benefits of travel information and the safety of calling for traffic information on a cellular phone while operating a vehicle. However, this survey demonstrates that the users and potential users prefer the 3-digit number.

REFERENCES

1. Multisystems. *Evaluation of Phase II of the SmarTraveler Advanced Traveler Information System Operational Test*. Report submitted to Central Transportation Planning for the City of Boston. July 1994.
2. Schintler, Laurie. *Use and Awareness of Traveler Information Services in the National Capital Region*. Report prepared for Virginia Department of Transportation, FHWA, and Partners in Motion Evaluation Subcommittee. March, 1998.

Table 1: Frequency of Use for Aware Respondents

Frequency	Percent of 579 Respondents asked
Every Day	1.6%
More than once a week	1.4%
About once a week	2.4%
Less than once a week	15.0%
Never	79.6%

Table 2: Frequency of Other Household Resident Using ARTIMIS TATS

Frequency	Percent of 579 Respondents asked
Every Day	0.7%
More than once a week	0.9%
About once a week	1.6%
Less than once a week	8.4%
Never	74.7%
Live Alone	11.2%

Table 3: Predicted Frequency of Use for Unaware Respondents

Frequency	Percentage of 471 Respondents asked	
	Themselves	Others in the Household
Frequently	7%	6%
Occasionally	45%	32%
Never	47%	47%
Live Alone	NA	14%

Table 4: Sample by Age and Sex

Age Group	Number of Males (% of Age Group)	Number of Females (% of Age Group)	Total in Age Group (% in Sample)
18-25	38 (39%)	59 (61%)	97 (9%)
26-35	104 (51%)	101 (49%)	205 (20%)
36-45	107 (42%)	148 (58%)	255 (25%)
46-55	99 (48%)	107 (52%)	206 (20%)
56-65	54 (49%)	57 (51%)	111 (11%)
66-75	36 (40%)	54 (60%)	90 (9%)
>75	23 (35%)	43 (65%)	66 (6%)
Total	461 (45%)	569 (55%)	1030*

*Note that not all respondents provided age.

Table 5: ARTIMIS or TMC Awareness by Age

Age Group	Percent Aware of ARTIMIS or TMC
18-25	17.5
26-35	35.6
36-45	46.3
46-55	50.5
56-65	43.2
66-75	37.8
>75	16.7

Table 6: Workers per Household and Awareness

Workers	Percent of Households	TMC Aware	Tel. Travel Info Aware
0	17.5	27.2%	47.3%
1	39.1	39.7%	57.7%
2	34.1	44.6%	54.9%
3	7.8	37.8%	56.1%
>=4	1.5	56.3%	87.5%

Table 7: Household Vehicles and Awareness

Vehicles	Percent of Households	TMC Aware	Tel. Travel Info Aware
0	4.8	16.0%	38.0%
1	23.7	27.8%	34.4%
2	40.6	45.7%	54.6%
>=3	30.9	43.3%	59.4%

Figure 1: Respondents Home Zip Codes

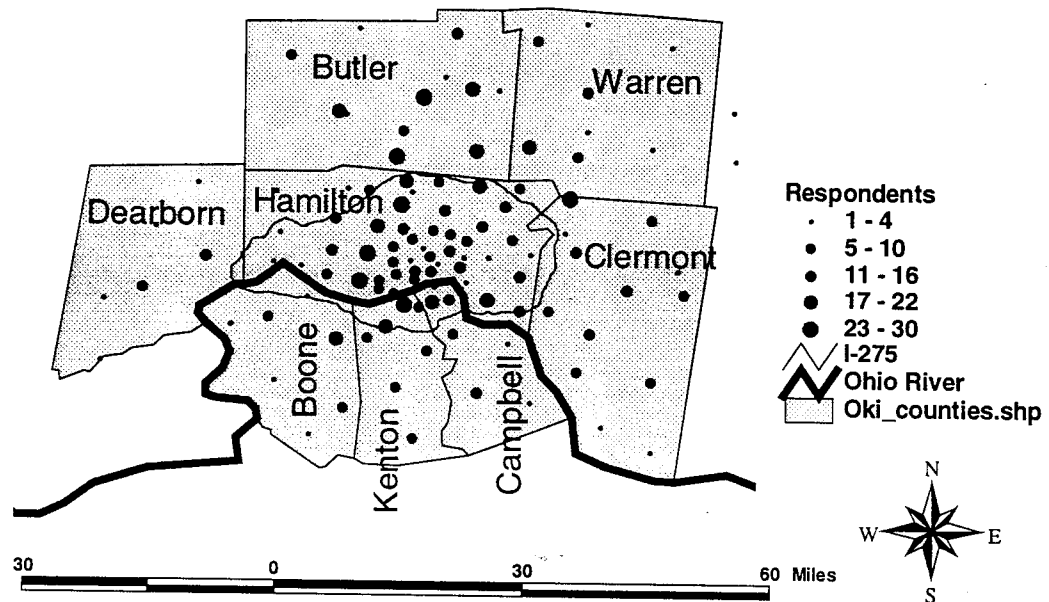


Figure 2: Awareness of ARTIMIS or TMC by Home Zip Code

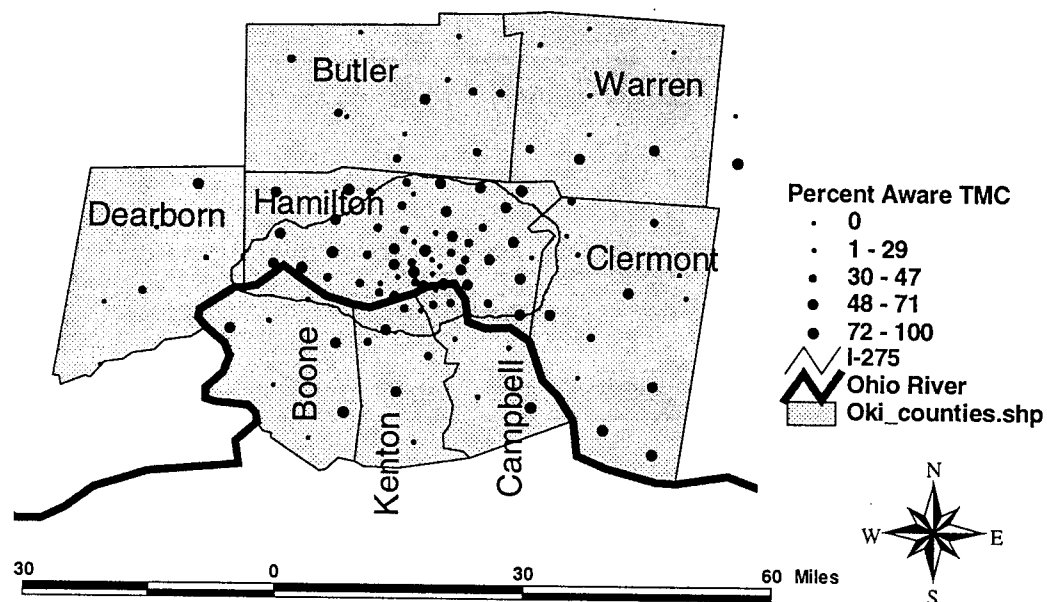


Figure 3: Awareness of Telephone Travel Information by Home Zip Code

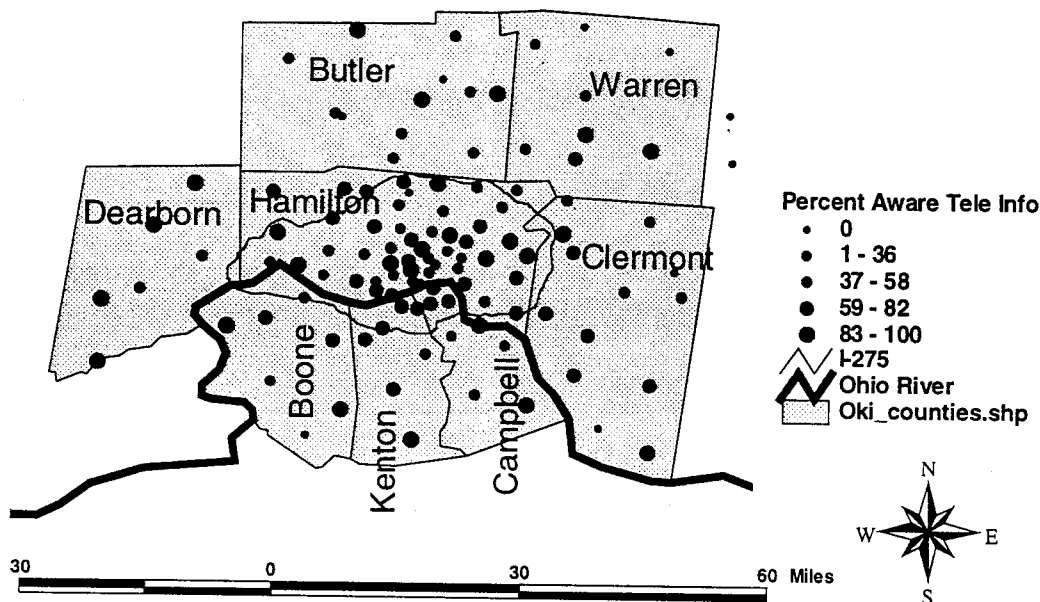


Figure 4: Work Locations by Zip Code (all members of household)

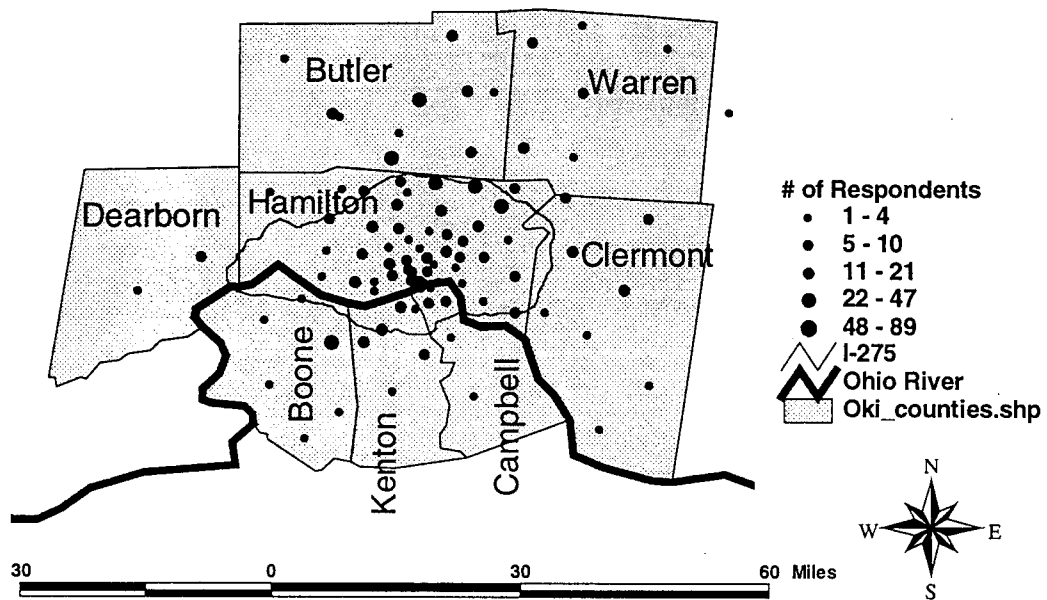
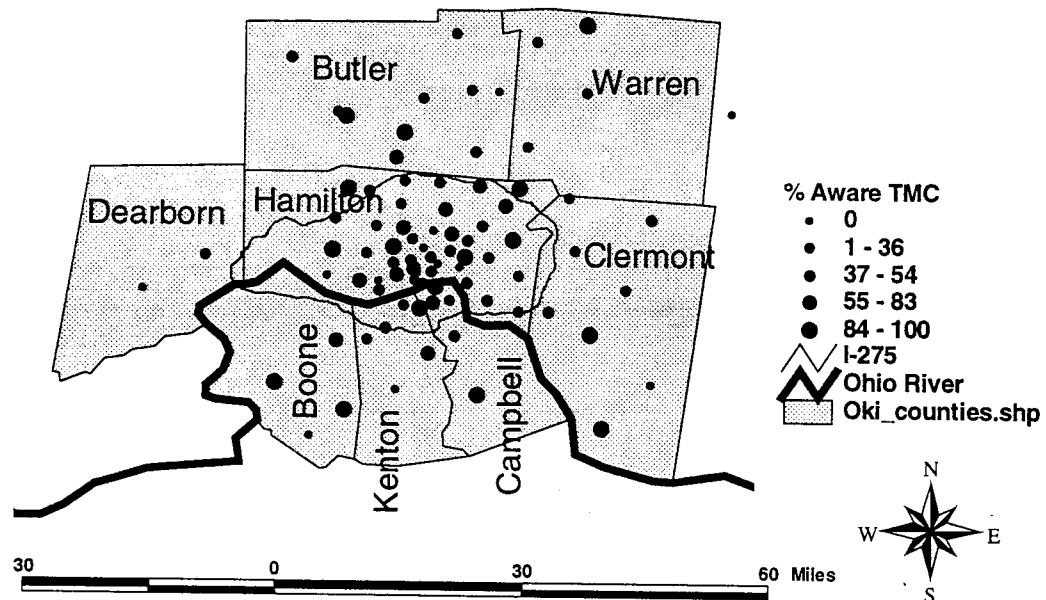
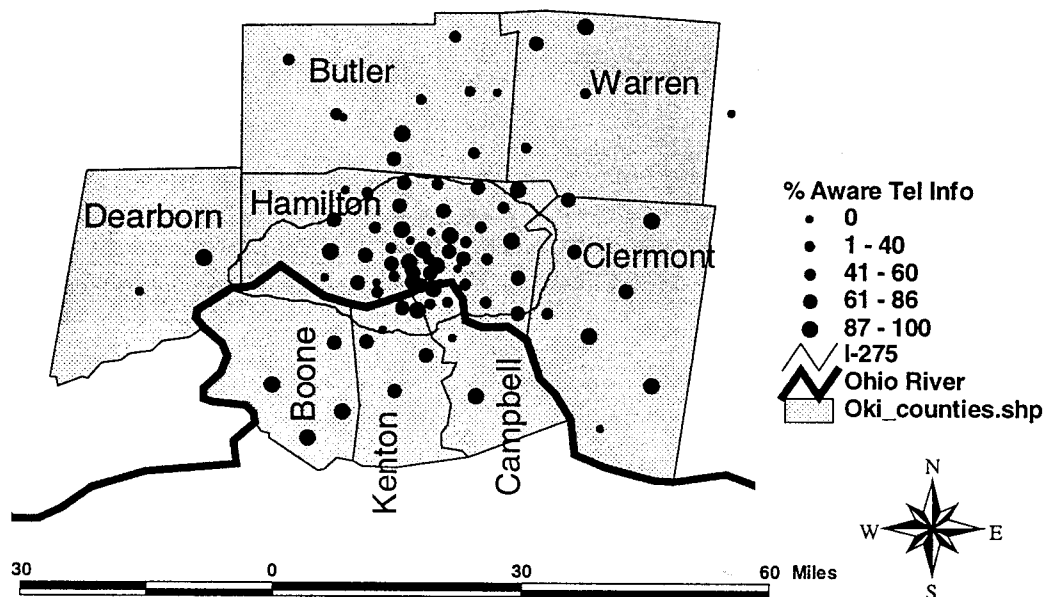


Figure 5: ARTIMIS / TMC Awareness by Work Zip Code (Respondents only)



**Figure 6: Telephone Travel Information Awareness by Work Zip Code
(Respondents only)**



Appendix A: Survey Questionnaire

ARTIMIS 211 AWARENESS SURVEY

Hello, my name is [#####] and I'm calling from the Survey Research Center at the University of Kentucky. We're conducting a study for the Kentucky Transportation Center here on campus regarding travel in the Cincinnati/Northern Kentucky area. This survey will take less than 10 minutes of your time and your phone number was selected at random and we do not know your name, so your answers will be completely anonymous.

*Note: Not all questions are read to all of the people being surveyed. Some questions are either skipped or added depending on responses to previous questions.

1. My instructions are to talk to a [2]## 18 years of age or older. Would that be you? (If not, would you call them to the phone please?)

Continue
No answer/answering machine
Phone busy
Disconnected phone
Business/government phone
Initial refusal
Computer tone
Language problems
Schedule callback
No eligible respondent
Respondent not available for duration

2. If I have your permission, do you have a valid driver's license?

Yes
No
DK¹
REF²

3. How do you travel most often?

Someone else drives me
Bus
Walk or bike
Taxi
Other
DK
REF

4. [INTERVIEWER: RECORD RESPONDENT'S GENDER WITHOUT ASKING]³

Male
Female

5. In the past seven days have you or anyone in your household traveled on any freeway or interstate in the Cincinnati/Northern Kentucky area?

Yes
No
DK
REF

¹ Used when respondent did not know the answer to the question.

² Used when respondent refused to answer the question.

³ Information in [] are instructions to those performing the survey.

6. In the past seven days have you or anyone in your household traveled on the streets in downtown Cincinnati, Covington or Newport?

Yes
No
DK
REF

7. Have you heard of ARTIMIS, that's A-R-T-I-M-I-S?

[INTERVIEWER: BE SURE TO SPELL IT OUT ON THIS QUESTION FOR EACH RESPONDENT]

Yes
No
DK
REF

8. To the best of your knowledge, what is ARTIMIS?

Open end
DK
REF

[INTERVIEWER: IF THE RESPONDENT GIVES AN ACCURATE 'BALLPARK' DESCRIPTION OF ARTIMIS IN PREVIOUS QUESTION, ENTER '3' AND DO NOT READ THIS QUESTION]

9. ARTIMIS is a traffic management center that collects traffic information, using devices such as cameras and reports it back to the public in various ways. Before I told you this, did you know that there was a traffic management center for the Cincinnati/Northern Kentucky area?

Yes
No
Did not need to ask this question
DK
REF

10. Have you heard of SmarTraveler?

Yes
No
DK
REF

11. To the best of your knowledge, what is SmarTraveler?

Telephone travel information service
Something else
DK
REF

12. Did you know that SmarTraveler is part of ARTIMIS?

Yes
No
DK
REF

13. Are you aware that the greater Cincinnati/Northern Kentucky area has a telephone number you can call for current traffic information?

Yes
No
DK
REF

14. How did you become aware of the telephone number to obtain traffic information?

Word of mouth
Television
Radio
Road signs
Newspaper
Internet
Other
DK
REF

15. How often do you use the phone to obtain traffic information in the Cincinnati/Northern Kentucky area?

Every day
More than once a week
About once a week
Less than once a week
Never
DK
REF

16. When you call to obtain traffic information, what numbers do you use?

[....any other numbers you use?]

Numeric Open End
DK
REF

17. Did you know you can always make a FREE CALL to 211 to obtain traffic information anywhere in the greater Cincinnati/Northern Kentucky area?

Yes
No
DK
REF

18. Are you aware that 211, one of the traffic information numbers, can be used on both cellular and non-cellular phones?

Yes
No
DK
REF

19. How often does someone else in your household use the phone to obtain traffic information?

Every day
More than once a week
About once a week
Less than once a week
Never
Live alone (Volunteered)

DK
REF

20. Now that you are aware that Cincinnati/Northern Kentucky has a free telephone number for current traffic information, how often do you think you would use such a service?

Frequently
Occasionally
Never
DK
REF

21. How often might someone else in your household use a free telephone number for current traffic information?

Frequently
Occasionally
Never
Live alone (Volunteered)
DK
REF

22. If you had your choice, which phone number would you prefer to dial for traffic information:

211, or
333-3333*
DK
REF

*The interviewer will read one of the following:
211 – 333-3333; 211 – seven threes; 333-3333 – 211;
and seven threes – 211. Each should be read one-fourth
of the time.

23. Which phone number would you find easier to remember for traffic information:

211, or
333-3333*
DK
REF

*The interviewer will read one of the following:
211 – 333-3333; 211 – seven threes; 333-3333 – 211;
and seven threes – 211. Each should be read one-fourth
of the time.

24. Have you ever obtained traffic information by phone in another city?

Yes
No
DK
REF

25. Did you live or work in that city, were you visiting or were you passing through?

Lived or worked there
Visiting
Passing through
DK
REF

26. 911 is a nationwide number you can dial for emergency services. Some people would like to see a nationwide three-digit number you could dial for travel information. Wherever you were, you could dial a number like 211 or 511 and if that area had a telephone traveler information service you would be connected.

Would you personally benefit from a NATIONWIDE three digit traffic information number?

Yes
No

DK
REF

27. Which of the following sources of traffic information do you use:

5:30 advisory radio
Other radio broadcasts
Television
Internet
Newspaper
Changing message signs over the freeway
Other
DK
REF

The last few questions are so we can see if different people have different uses for traffic information services.

28. First, including yourself, how many people live in your household?

Numeric Open End
DK
REF

29. How many people under 18 years old live in your household?

Numeric Open End
DK
REF

30. How many people under 12 live in your household?

Numeric Open End
DK
REF

31. How many cars, trucks, vans or other motor vehicles does your household have?

Numeric Open End
DK
REF

32. What is your zip code where you live?

Numeric Open End
DK
REF

33. Do you work outside your home?

Yes
No
DK
REF

34. Approximately how many miles do you travel to work (one way)?

Numeric Open End
DK
REF

35. What is the zip code of your workplace?

Numeric Open End

DK
REF

36. What town or city do you work in?

Open End
DK
REF

**[INTERVIEWER: ASK THIS QUESTION ONLY IF THEY HAVE SAID
THEY WORK IN CINCINNATI; ELSE ENTER 'SKIP THIS
QUESTION']**

37. Do you work in DOWNTOWN Cincinnati?

Yes
No
DK
REF

38. Do you drive to work alone or with someone else?

Drive alone
Drive with someone else
Do not drive to work
DK
REF

39. Do you travel to work during the morning or evening rush hours?

Morning
Evening
Both
Neither
DK
REF

40. Does the second adult in your household work outside the home?

Yes
No
DK
REF

41. Approximately how many miles do they travel to work (one way)?

Numeric Open End
DK
REF

42. Could you tell me the zip code of their workplace?

Numeric Open End
DK
REF

43. What town or city do they work in?

Open End
DK
REF

**[INTERVIEWER: ASK THIS QUESTION ONLY IF THEY HAVE SAID
THEY WORK IN CINCINNATI; ELSE ENTER 'SKIP THIS**

QUESTION']

44. Do they work in DOWNTOWN Cincinnati?

Yes
No
DK
REF

45. Do they drive to work alone or with someone else?

Drive alone
Drive with someone else
Do not drive to work
DK
REF

46. Do they travel to work during the morning or evening rush hours?

Morning
Evening
Both
Neither
DK
REF

47. Does the third adult in your household work outside the home?

Yes
No
DK
REF

48. Approximately how many miles do they travel to work (one way)?

Numeric Open End
DK
REF

49. Could you tell me the zip code of their workplace?

Numeric Open End
DK
REF

50. What town or city do they work in?

Open End
DK
REF

**[INTERVIEWER: ASK THIS QUESTION ONLY IF THEY HAVE SAID
THEY WORK IN CINCINNATI; ELSE ENTER 'SKIP THIS
QUESTION']**

51. Do they work in DOWNTOWN Cincinnati?

Yes
No
DK
REF

52. Do they drive to work alone or with someone else?

Drive alone

Drive with someone else
Do not drive to work
DK
REF

53. Do they travel to work during the morning or evening rush hours?

Morning
Evening
Both
Neither
DK
REF

54. How many cellular phones does your household own?

Numeric Open End
DK
REF

55. Some cellular phone companies have helped publicize the 211 telephone traffic information system or allow free calls to it. In order that we may see if their actions affect responses to this survey, will you tell me the name of your cellular service provider?

Open End
DK
REF

56. In what year were you born?

Numeric Open End
DK
REF

57. What was the highest level of education you completed?

Grade school (through grade 8)
Some high school education (not a graduate)
High school graduate or GED
1 to 3 years of college
4 years of college, or college degree
Postgraduate work or degree
DK
REF

58. Last year, what was your total household income from all sources before taxes?

Less than \$15,000
\$15,000 to \$25,000
\$25,000 to \$35,000
\$35,000 to \$45,000
\$45,000 to \$55,000
\$55,000 to \$65,000
\$65,000 to \$100,000
More than \$100,000
DK
REF